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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,221	04/02/2004	Takayuki Nakamoto	43888-310	7325

7590 01/05/2007
MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT	PAPER NUMBER
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1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,221	NAKAMOTO ET AL.	
	Examiner	Art Unit	
	Tony Chuo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-9 are currently pending. The 112 rejection of claim 4 is withdrawn. The amended claims 1, 5, 6, and 9 do overcome the previously stated 102 and 103 rejections. However, upon further considerations, claims 1-9 are currently rejected under the following new 102, 103, and double patenting rejections.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 9 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3-5 of copending application no. 10/982,056 in view of Yamamoto et al (US 2003/0054249). The copending application no. 10/982,056 discloses an energy device comprising a negative active

material thin film that has a multi-layered configuration including at least two silicon thin films wherein a compound of silicon and oxide is present in the interface layer. The Yamamoto reference teaches a negative electrode active material that has silicon oxide film with a thickness of 1.6 nm (See paragraph [0105]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the negative active material thin film of copending application no. 10/982,056 to include a silicon oxide layer that has an average thickness of 0.2 to 1,000 nm in order to reduce the hydrofluoric acid level in the electrolyte (See paragraph [0130]).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claim 9 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3 of copending application No. 10/979,637 in view of Yamamoto et al (US 2003/0054249). The copending application no. 10/979,637 discloses an energy device comprising a negative active material thin film that contains silicon as a main component wherein part of the silicon contained in the negative active material thin film is an oxide. The Yamamoto reference teaches a negative electrode active material that has silicon oxide film with a thickness of 1.6 nm (See paragraph [0105]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the negative active material thin film of copending application no. 10/982,056 to include a silicon oxide layer that has an average thickness of 0.2 to 1,000 nm in order to reduce the hydrofluoric acid level in the electrolyte (See paragraph [0130]).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al (US 2003/0054249). Regarding claims 1-3, 7, and 9, the Yamamoto reference discloses a non-aqueous electrolyte secondary battery using a negative electrode active material capable of absorbing/desorbing lithium comprising: an silicon layer "3b" that is a thin film and a silicon oxide layer "5b" formed on the silicon layer that has a thickness of 1.6 nm (See paragraph [0072],[0105]).

Regarding claim 4, it is implicit from the teachings of Yamamoto that the silicon oxide formed by vapor deposition would have a thickness in the range of $\pm 50\%$ of the average thickness since it is well known in the art that the vapor deposition process forms a very uniform layer (See paragraph [0101]).

Regarding claim 8, it also discloses an amorphous silicon material (See paragraph [0100]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al (US 2003/0054249) in view of Kawase et al (US 2004/0142242). The Yamamoto reference is applied to claim 1 for reasons stated above. However, Yamamoto et al does not expressly teach an alloy comprising Si and at least an element selected from the group consisting of Ti, Co, Ni, Cu, Mg, Zr, V, Mo, W, Mn, and Fe. The Kawase reference discloses an anode active material layer comprising silicon that is alloyed with the an anode collector that is made of copper, stainless, nickel, titanium, tungsten, or molybdenum (See paragraph [0026],[0027]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Yamamoto negative electrode active material to include an alloy comprising Si and at least an element selected from the group consisting of Ti, Co, Ni, Cu, Mg, Zr, V, Mo, W, Mn, and Fe in order to inhibit breakage due to expansion or shrinkage of the anode active material layer during charge and discharge and to improve the electronic conductivity of the anode.

Response to Arguments

9. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC



DAI-WEIYUAN
PRIMARY EXAMINER